

Taxonomic revision of the mydas-fly genus *Cacatuopyga* Papavero & Wilcox, 1974



Smithsonian
National Museum of Natural History

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Introduction

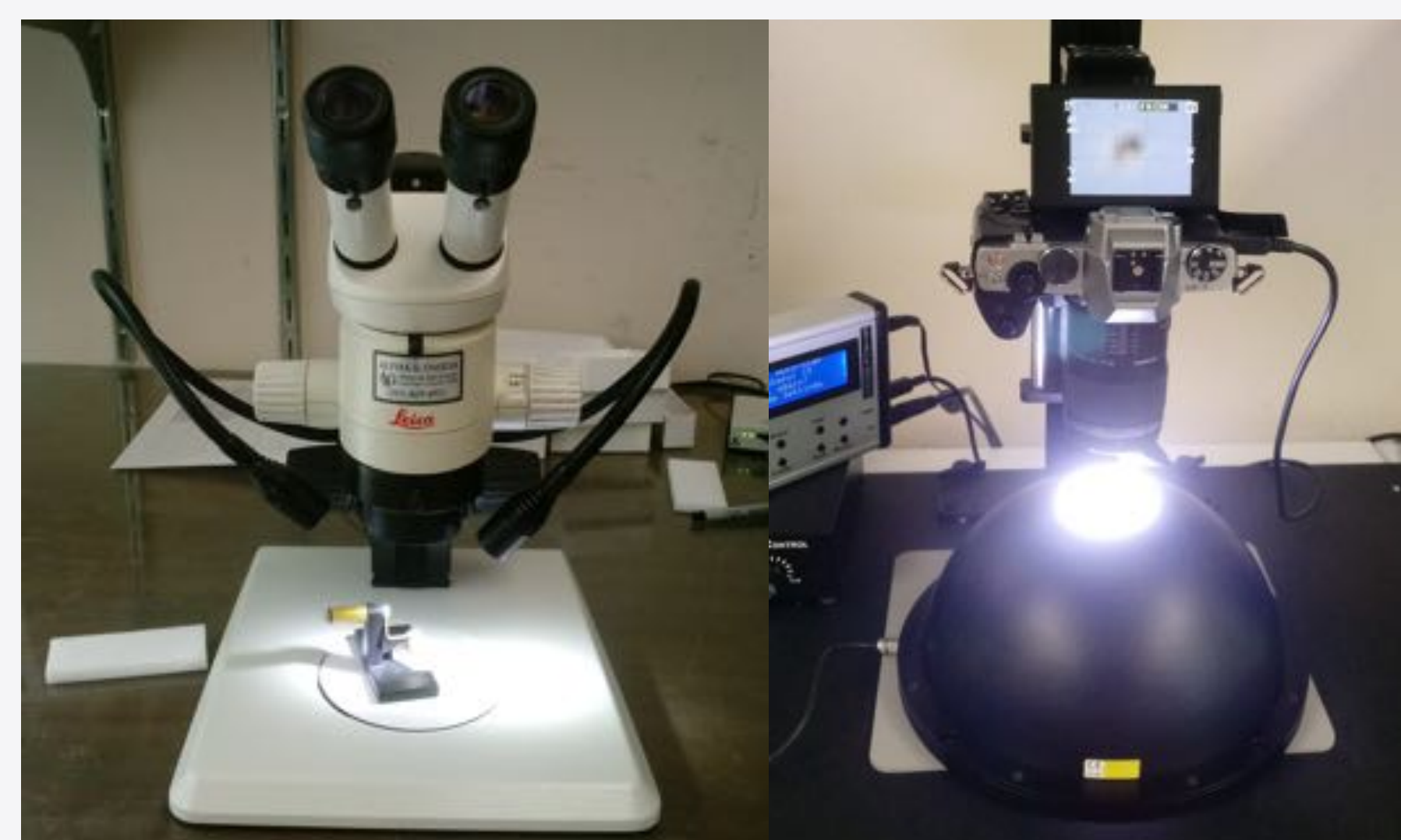
Some 478 valid Mydid species are known globally, with the largest species and generic diversity found in southern Africa (Dikow, in press). The mydas-fly genus *Cacatuopyga* Papavero & Wilcox, 1974, known from five valid species in the Oriental zoogeographic region and occurring from India to Eastern Indonesia, is first comprehensively reviewed in this study. Species were described between 1824 and 1934 in the genus *Mydas* and transferred to *Cacatuopyga* by Papavero & Wilcox (1974). New material, collected between 1848 and 1990, has since become available.



Cacatuopyga n. sp. 1, ♀, Biliran, Philippines, scale=5mm

Methods

Morphological features were examined with a stereo microscope (below left). Specimens were photographed using a focus-stacking setup and an industrial-grade lighting dome (below right). Male terminalia were first excised and macerated in potassium hydroxide at 55°C followed by neutralization in acetic acid and rinsing in distilled water. They were temporarily stored in ethanol. Terminalia were examined and illustrated and eventually sealed in polyethylene vials containing glycerin and attached to the specimen's pin.



Materials

The specimens examined in this study were either taken from the Smithsonian U.S. National Collection (USNM) or loaned from the following institutions: BMNH - Natural History Museum, London; BPBM - Bishop Museum, Honolulu; CAS - California Academy of Sciences, San Francisco; SDEI - Senckenberg Deutsches Entomologisches Institut, Müncheberg; LACM - Natural History Museum of Los Angeles County; MNHN - Muséum national d'Histoire naturelle, Paris; MSNG - Museo Civico di Storia Naturale di Genova 'Giacomo Doria'; MZSP - Museu de Zoologia da Universidade de São Paulo; NHMW - Naturhistorisches Museum, Wien; RMNH - Naturalis Biodiversity Center, Leiden; ZMHB - Museum für Naturkunde, Berlin; and ZMUC - University of Copenhagen.

Identification

In addition to body, leg, and wing coloration, several features help differentiate species.

- The mystax (ancient Greek for "mustache") varies in coloration and setal density. While present in both sexes, the female mystax is much darker in most species.

- The hind tibia has a keel-like ventral ridge in most species.

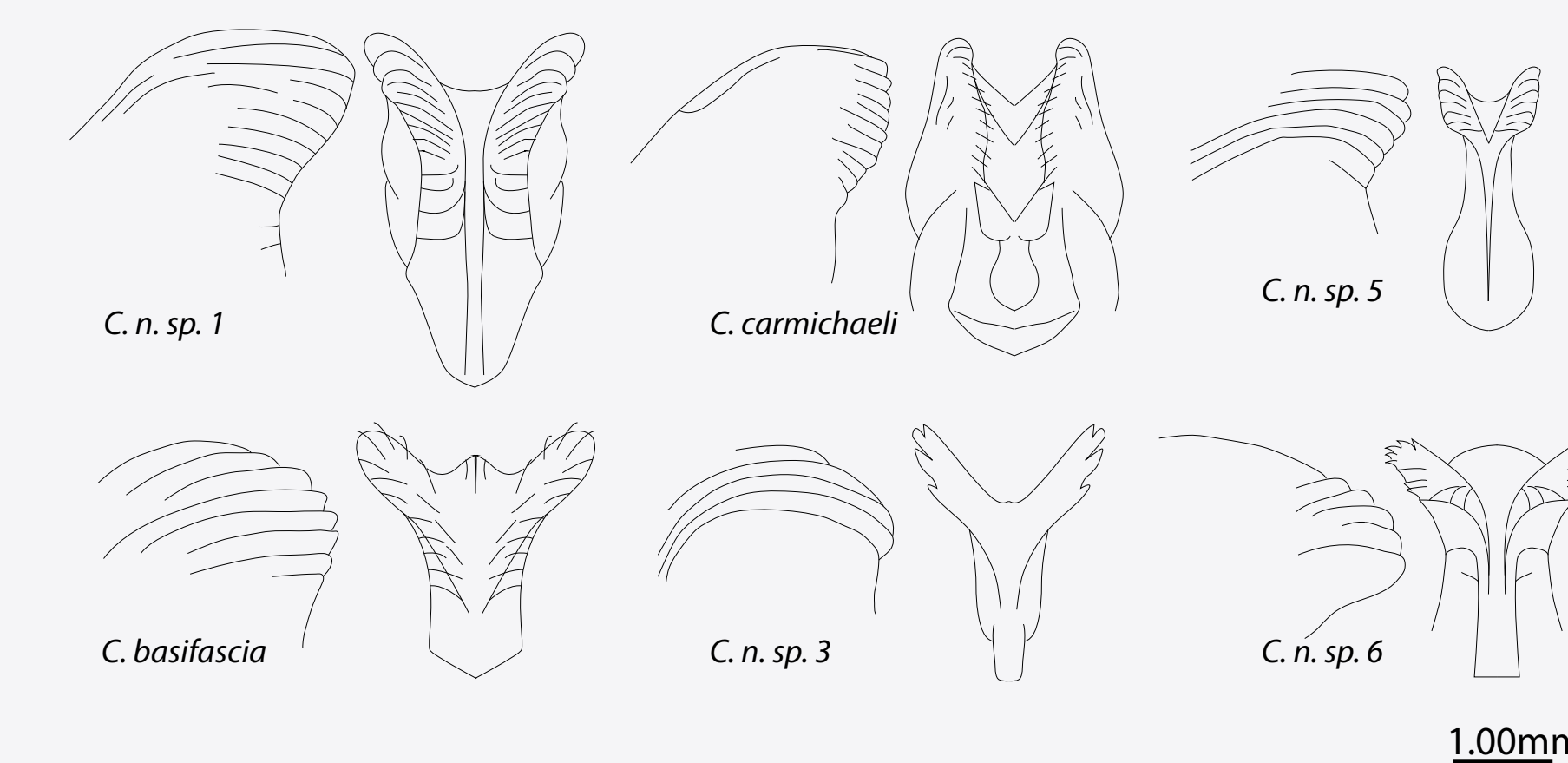
C. auriculosa uniquely has a short spur at the tibial apex.



Above, clockwise from top left: *Cacatuopyga n. sp. 3* ♂, *C. carmichaeli* ♂, *C. n. sp. 2* ♀, *C. n. sp. 1* ♀, *C. auriculosa* ♀

Male Terminalia

Within *Cacatuopyga*, differences in the male terminalia delimit species. Unfortunately, males of many species have never been collected. The chart below shows a lateral view of the upper, crested part of the phallus, and a posterior view of the entire phallus.



Phenology

Dates of collection were not recorded for most of the *Cacatuopyga* specimens which were available for study. The data below are based on specimen labels, along with published records of *C. carmichaeli* (Brunetti, 1913).

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
<i>C. n. sp. 1</i>	-	-	x	x	-	-	-	-	o	-	-	-
<i>C. n. sp. 2</i>	-	-	-	-	-	-	-	-	-	x	-	-
<i>C. n. sp. 4</i>	-	-	-	-	-	-	-	x	-	-	-	-
<i>C. n. sp. 5</i>	-	-	-	-	-	-	o	-	-	-	-	-
<i>C. n. sp. 6</i>	-	x	xx	x	-	-	-	-	-	-	-	-
<i>C. basifascia</i>	-	x	-	-	-	-	-	-	x	x	-	-
<i>C. n. sp. 3</i>	-	x	-	-	-	-	-	-	-	-	-	-
<i>C. carmichaeli</i>	-	-	-	xxxx	xx	-	-	-	-	-	-	-

x = separate collecting event; o = pupal collection

Discussion

Papavero & Wilcox characterized the subfamily Cacatuopyginae by possession of a cylindrical hind tibia without the ventral carina terminating in a spur found in the subfamily Mydinae (1974). However, examination of the type specimen of *Cacatuopyga auriculosa* (Seguy, 1934) revealed a thickened hind femur and a carinate, spurred hind tibia, both absent from the rest of subfamily Cacatuopyginae but present in other groups.

We continue to explore the evolutionary relationships between *Cacatuopyga*, the other Cacatuopygine genus *Charimydas*, and North American flies of subfamily Mydinae, which *Cacatuopyga* strongly resemble. Preliminary results suggest that within *Cacatuopyga*, the Wallacean species, the southern Indian species, and the group of *C. carmichaeli* and *C. n. sp. 1* & *C. n. sp. 5*, are monophyletic.

We report the type specimen of *Cacatuopyga fruhstorferi* (Wulp, 1896), described from Java, as lost. Because of its geographic isolation, it is probably a distinct species. The original description is insufficiently precise to eliminate the possibility that *C. carmichaeli*, *C. n. sp. 1* or *C. n. sp. 5* turn out to be junior synonyms of *C. fruhstorferi*.



Cacatuopyga n. sp. 3, ♂, Ternate, Indonesia, 1848, scale=5mm

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